



88008490

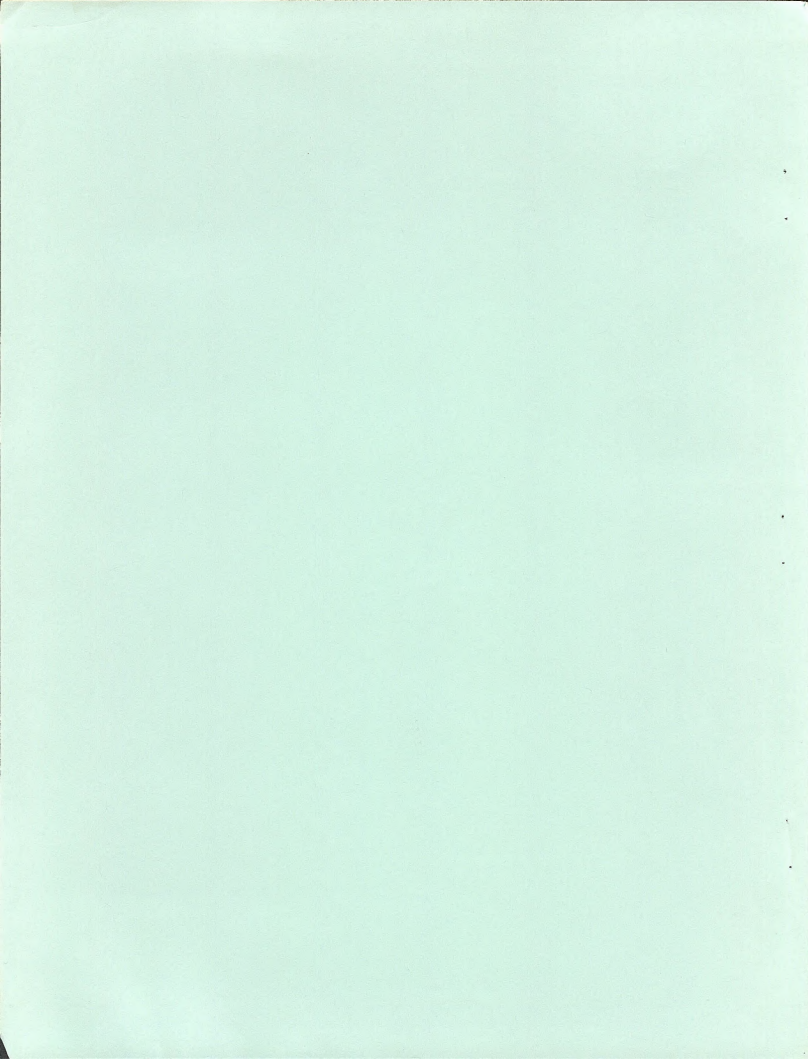
MONITORING PLAN

for the

# BENTON - OWENS Valley PLANNING UNITS

SF  
85.35  
.C2  
B46

United States Department of the Interior  
Bureau of Land Management  
California



88008490

BLM CA TD 83 010 1600

SF  
85.35  
C2  
B46

BLM Library  
D-553A, Building 50  
Denver Federal Center  
P. O. Box 25047  
Denver, CO 80225-0047

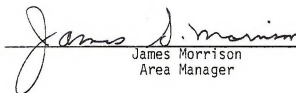
BENTON OWENS VALLEY MONITORING PLAN

FOR THE

BENTON-OWENS VALLEY PLANNING UNITS

OF THE

BISHOP RESOURCE AREA

  
James Morrison  
Area Manager



## INTRODUCTION

This plan is designed to lay an initial foundation for establishing or continuing monitoring studies that will evaluate the affects of livestock grazing on 542,000 acres of public land and associated resources within the Bishop Resource Area. The monitoring studies will address management issues identified through the land use planning and environmental impact statement process for the Benton Owens Valley Planning Units as displayed on page 5.

The monitoring studies outlined in this plan will identify the initial monitoring intensity needed by allotment to answer pertinent management questions, and are designed to support future management decisions for both the public land managers (BLM) and the public land users in this area. Future monitoring needs may change, but we feel the studies outlined in this plan will provide adequate base information from which evaluation of and changes to monitoring intensity can be made. Variations from the study methods outlined in this plan will be documented in a supplement to this plan or in an activity plan.

It is important to point out at this time that the type and method of monitoring study should not be changed once established in order to compare the same parameters for different years. However, the time period between study readings or the number of samples per strata may be adjusted once the original long term monitoring scheme has been implemented for at least seven to ten years.

## BENTON-OWENS VALLEY MONITORING PLAN

### I. Purpose

To provide a systematic approach to evaluate the progress towards meeting management goals and objectives specific to grazing management for the public lands in the Benton-Owens Valley Planning Units. Also to provide documentation and guidance if changes in grazing management are needed in order to eventually meet those management goals and objectives.

### II. Description and History of Use of the Area

The vegetation of the public lands of the Benton Owens Valley Planning Units is composed primarily of Great Basin species. All allotments are managed as perennial ranges with the exception of the Volcanic Table Lands Allotment, which usually contains a large amount of annual plants.

The area had been heavily grazed by livestock in the past, which prompted the development of the old Mojave Grazing District of which this area was the northern half. About the same time as formation of the old district, the private bottom lands of the valleys were purchased by the Los Angeles Department of Water and Power (LADWP) to be held as a watershed reserve for the Los Angeles Aqueduct. The grazing pressure from livestock on the public lands in some allotments is strongly influenced by the proximity of public land to the LADWP lands, which are leased to the grazing operators.

The Owens Valley also serves as a north-south corridor for migrating bands of sheep from the California Desert range lands to the higher summer ranges north of Bishop or into Nevada.

The selective management stratification of the Benton-Owens Valley allotments portrays the extent of the influence of land ownership patterns on management and identifies those areas that have reasonable response potential to management. The selective management criteria and initial allotment ranking are displayed in the Range Program Summary for the Benton-Owens Valley Planning Units, July 1982.

### III. Strategy for Monitoring Program

Elements of the overall monitoring program for grazing management include:

1. Use Supervision and Compliance to Grazing Authorizations. Since this is part of our standard administrative procedure, this element will not be further addressed in this plan.
2. Short Term Studies - to evaluate needed adjustments within a 5 year period based on utilization levels of key forage by all grazing animals in conjunction with actual use grazing records (livestock) or population counts (wildlife).
3. Long Term Studies - designed to measure progress towards or maintenance of management goals and objectives for the allotment. Usually the studies are associated with an evaluation of range site or habitat condition and trend.

Measurable changes would not be expected to occur on these study sites until 5 - 10 years after the grazing program is implemented, with the exception of riparian systems. Evaluation will be scheduled at least every 10 years unless otherwise noted in this document or an activity plan.

The selective management stratification will be used to help prioritize all studies, except in special cases as determined by the Area Manager. Studies should be implemented in the following order as funds permit:

1. Short term studies on class I allotments without a proposed grazing system.
2. Short term studies on class I allotments with a proposed grazing system.
3. Long term studies on those allotments identified in Section IV after activity plans are implemented and/or initial stocking level adjustments are made.
4. Periodic utilization checks of class M allotments on a limited basis after completion of the first three priorities above.

Initial stocking level adjustments can be made in accordance with Bureau policy by following the sequence above. Long term range site studies need not be initiated until all short term studies have verified utilization goals have been met.

Proposed vegetation treatments will have photo plots and ecological site condition transects established prior to treatment. Details of the monitoring system to be used after completion of the treatment will be outlined in the treatment plan.

It is imperative that the same study methods be continued over the years, regardless of what methodologies are used on a particular study location. Only with continuity over time do these studies provide useful answers.

Consideration may also be given to remapping range site condition at the end of 20 years (4 planning cycles) to evaluate overall progress towards management objectives and accuracy of the monitoring system. The mapping would be done in conjunction with the planning update and would incorporate standard SVIM 100-200 pace transects to document mapping unit composition.

The basis for stratifying the monitoring area to make most efficient use of manpower and funding will be the key area and key species.

key area: a relatively small portion of a rangeland selected because of its location, use, or grazing value as an area on which to monitor the effects of grazing use. It is assumed that key areas, if properly selected, will show the effects of current grazing management over all or a part of a pasture, allotment, or other grazing unit.

key species: (1) those species which must, because of their importance, be considered in a management program, or (2) forage species whose use serves as an indicator to the degree of use of associated species.



One last consideration within the scope of this plan is how to determine which allotments scheduled for adjustment need more detail in the sampling scheme and which should receive less, particularly when viewed in light of limited manpower and funding. This concern can best be resolved by reviewing the record of cooperation by the grazing operators through the first five years of phased-in adjustments. More sampling should be planned in those allotments with controversial adjustments involved. Where less controversy is involved and mutual agreement has been reached on all decisions through the five year adjustment period, less sampling should be planned.



RESOURCE COMPONENTS TO BE MONITORED

	SELECT. MGT. CATEGORY	MANAGEMENT ISSUES	VEGETATIVE TREATMENTS	ACTIVITY PLAN	EXISTING STUDIES	BROWSE UTILIZATION	DEER HABITAT & WINTER RANGE	ELK CALVING & WINTER RANGE	RIPARIAN/ AQUATIC CONDITION	SAGE GROUSE HABITAT CONDITION	ECOLOGICAL SITE CONDITION	LIVESTOCK UTILIZATION CLASS I&M	SENS. PLANTS
6008 Round Valley Common	I	Deer Winter Range		AMP	COFAG Browse util. 5-yr. Cycle Cond & Trend	X	X				X	X	
6014 Independence	M	Riparian & Habitat Condition @ 15 Mi. of Stream		O					X 4 Streams		X		
6022 Wilfred	I	Forb produc- tion (seas. of use) Sage grouse habitat cond. Asjohn.		AMP	Cont & Trend (Asnon)					X		X	X
6024 Hammit Valley	I	Deer Winter Range		AMP	COFAG Browse util. 5-yr. Cycle Cond & Trend	X	X				X		
6025 Marole Creek	I	Deer Winter Range. Pro- tection of riparian and aquatic habitat 3 mi. of stream.		AMP	COFAG Browse util. 5-yr. Cycle Cond & Trend	X	X		X 1 Stream		X	X	
6027 Adobe Valley	I	Antelope habitat Ac. improvement.	Spray 3760 Ac.	AMP	Cond & Trend 3-yr. Cycle						X	X	
6032 Sherwin	I	Deer Winter Range		AMP	COFAG Browse util. 5-yr. Cycle Cond & Trend	X	X				X	X	
6038 Bramlette	I	Deer Winter Range	Seed 14720 Ac.	AMP	COFAG Browse Util. 5-yr. Cycle Cond & Trend	X	X				X	X	
6042 Ash Creek	C <sup>1</sup>	Riparian & Aquatic Habitat Condition @ 3 mi. of Stream.			O				X 1 Stream		X	X	
6046 Alabame Hills	M <sup>1</sup>	Riparian & Aquatic Habitat Condition @ 20 mi. of Stream.			O				X 8 Streams		X	X	
6051 Wells Meadow	I	Deer Winter Range		AMP	COFAG Browse Util. cond & Trend 5-yr. Range Cond. & Trend 3-yr. Cycle.	X	X				X	X	
6080 Blind Sortings	I	Deer Winter Range		AMP	O	X	X				X		
6018 Hot Creek	M <sup>1</sup>	Riparian & Aquatic Habitat Condition. Sage Grouse Habitat cond.		AMP	O				X 1 Stream	X	X	X	
6019 West Crater Mtn.	M <sup>1</sup>			-	O						X	X	

RESOURCE COMPONENTS TO BE MONITORED (Cont.)

	SELECT. MGT. CATEGORY	MANAGEMENT ISSUES	VEGETATIVE TREATMENTS	ACTIVITY PLAN	EXISTING STUDIES	DEER		ELK		SAGE GROUSE HABITAT CONDITION	ECOLOGICAL SITE CONDITION	LIVESTOCK UTILIZATION CLASS 1&M	SENS. PLANTS
						BROWSE UTILIZATION	HABITAT & WINTER RANGE	CALVING & WINTER RANGE	RIPARIAN/ AQUATIC CONDITION				
6034 Granite Mountain	M <sup>1</sup>	Sage Grouse habitat imp. by spraying. 2500 Ac.	Burn 3000 Ac.	-	0					X	X	X	
6043 Chalk Bluff	M <sup>1</sup>				0						X	X	
6047 Red Mountain	M <sup>1</sup>	Elk Calving Grounds		-	0			X		X		X	
6050 Poverty Hills	M	Elk Calving Grounds		-	0			X				X	
6055 Mono Mills	M <sup>1</sup>	Ludu and <del>Asio</del> <sup>Asio</sup> <del>habitat</del> <sup>habitat</sup> <del>Test. Riparian</del> <sup>habitat</sup> on Indian Ck. Cyn.	Burn 6000	-	0				X		X	X	X
6079 East Crater Mtn.	M <sup>1</sup>			-	0						X	X	
6040 Laws	C	Protection of riparian habitat.		-	0								
6044 Long Valley	C	<u>Asio</u> Habitat		-	Cond & tr. ( <u>Asio</u> )								X
6012 Zurich	C	Elk Calving Grounds & Elk Winter Range.		-	0			X					
6049 Aberdeen	C	Elk Calving Grounds & Elk Winter Range		-	0			X					
6007 Volcanic Tablelands	C	Perennial/ Ephemeral Administration										X	
6028 Black Lake	C	<u>Caex</u> habitat											X
6004 Fish Slough	C	<u>Asio</u> habitat											X

<sup>1</sup> These allotments involve phased in adjustments. Utilization monitoring intensity should be greatly reduced after adjustment is completed.

## V. Methods to be Used by Component

### A. Short Term

#### Browse Utilization

Methods to be Used:      -Modified Cole  
                              -Leader Measurement

Transects will be established on key areas identified as mule deer winter range sites of the allotments. The key browse species to be monitored is Purshia tridentata (Putr).

Timing of transect readings will coincide with the turn on dates and off dates of livestock, and will also be made prior to the new annual growth of Putr. This will enable differentiation between livestock utilization and deer utilization and give a measure of overall annual utilization. (Also see Winter Range Condition and Trend.)

Parameters for Adjustment:

Utilization by livestock and deer on Putr would be acceptable within the range of 40 - 60%.

Utilization levels over 3 to 5 years that are consistently greater than 60% would require a change in livestock management.

#### Livestock Utilization

Methods to be Used:      -Actual Use Record  
                              -Key Forage Plant Method  
                              -Utilization Mapping

Utilization transects will be completed on representative livestock use areas containing key forage plants, with the exception of mule deer winter range (refer to browse utilization for methodology).

The transects will be completed within key areas during an annual allotment inspection at the end of each grazing season. It would be most beneficial to have the grazing operator participate in this allotment inspection. A utilization map depicting the degree and distribution of grazing use of the allotment and pasture will be completed at least the first year to help identify key areas for monitoring. The five utilization classes of the key forage plant method will be used for mapping delineations. Transects will be used to document the mapping delineations.

Utilization patterns should be remapped following any change in pasture boundary or significant change in grazing management.

Parameters for Adjustments:

Average allotment wide utilization (with the exception of reasonably acceptable concentration areas) would be acceptable within the range of 40 - 60%.

Utilization levels over 3 to 5 years that are consistently greater than 60% would require a change in livestock management.

#### B. Long Term

##### Riparian/Aquatic/Watershed

Methods to be Used:

- Technical note 283 - Condition Rating Criteria
- Photo Plots
- Water Quality/Sediment Yield Sampling

Unfenced riparian or aquatic areas will be evaluated by the condition rating criteria in Technical Note 283 at the end of two grazing cycles, or every five years where grazing systems are not proposed. Water sampling will be done in conjunction with the evaluations and/or at frequencies specified in an activity plan. Photo plots will be established where a severe erosion problem is apparent.

##### Parameters for Adjustment:

Data will be used to verify if utilization levels and periods of use by livestock are resulting in satisfactory riparian or aquatic condition. Changes in livestock management will be considered (such as fencing streams, allowing livestock within exclosed areas, or adjusting grazing use) if an overall unsatisfactory condition results from or continues due to livestock management over a 5 year period or as specified in an activity plan.

##### Sage Grouse Habitat Condition

Methods to be Used:

- Toe-point transects (Key on forb component)
- Photo plots (Sagebrush encroachment)
- CDF&G Brood Counts (Fish & Game)

##### Brood Rearing Areas - (Meadows)

All three methods will be used to document meadow condition and trend as related to forb available and sage brush encroachment. Forb availability will be compared to brood counts to verify correlation to condition. Transects and photos will be read every three years during the month of June.

##### Nesting Areas - (Sagebrush Communities)

Representative nesting areas within sagebrush communities will have a toe-point transect established to document change in the forb component. Transects will be read every three years during the month of June.

##### Parameters for Adjustment:

The resulting data would be used to document the influence of stocking rate and season of use on forb availability and meadow condition. Patterns over a 6 year period of continued decline in the forb component or continued loss of meadow to sagebrush encroachment will signal the need for management change.

### Elk Calving/Winter Range

Method to be used: -Ocular Observations of Key Areas

Periodic ocular observations will be used to:

- document calving areas and amount of Elk use.
- document livestock use of these areas and identify areas with special competition.

Parameter for Adjustment:

Areas with significant spacial competition will be considered for livestock management adjustment if Elk herd numbers start declining substantially from present numbers.

### Winter Range Condition and Trend

Methods to be Used: -Modified Cole Method  
-Photo Plot

The methods will be applied in the same manner as identified under Browse Utilization. Plots will be read on an annual basis after initiated. The readings taken prior to the new annual growth of Putr will be used for condition and trend evaluations.

Parameters for Adjustment:

Winter Range data would be analyzed in conjunction with the Range Site Condition and Trend date for the allotment as a whole. The data will be used to verify if utilization levels and periods of use are achieving the desired management objectives and if management changes are needed.

### Ecological Site Condition and Trend

Methods to be Used:

- Photo Plot
- Photo Plot with SVIM Pact Transect
- Quadrat Frequency Method
- Exclosures
- Photo Plot-Measurement Method

Exclosures will be established within key range sites to be used as long term comparison areas for ecological site condition and trend determination. The exclosures will also be used to verify or adjust the range site descriptions. Exclosures should be in place within 5 years. A SVIM transect and photo will be taken within the exclosure every 5 years after establishment. When possible, exclosures should be located over known cultural resource sites or sensitive plant sites.

Most range site condition and trend plots will consist of a photo plot (3' x 3' or 5' x 5' photo plot plus panoramic photo) with either a pace or frequency transect established from the plot. Individual photo plots or transects may be established on areas of special concern, such as accelerated erosion of soil. The SVIM pace transect should be used to document species composition for direct comparison to ecological site descriptions. The frequency transects should be used to detect species composition change to determine trend and evaluate the effectiveness of grazing management.

The condition and trend plots will be established on key areas (refer to livestock utilization) and can be stratified by allotment or pasture so that one plot may represent several areas receiving similar grazing use. The plots should be read during the months of May or June, or that period determined to be near the peak growth of key forage.

The specific period to read the plots will be outlined in the activity plan for that allotment. Subsequent plot readings will be made within the specified time period.

Conditions and trend plots will be established after implementation of the activity plan. Plots will be read every 5 - 8 years after initial establishment or as specified in an activity plan.

The photo plot-measurement method is an old Bureau method that has been established on the existing AMPs of Adobe Valley and Wells Meadow Allotments. These studies will be continued and are displayed under existing studies in section IV.

#### Parameters for Adjustment:

Plot and photo data will be used to verify if livestock utilization levels and periods of use are achieving the desired management objectives in terms of site condition.

## Sensitive Plant

Methods to be Used:      -Photo Plot-Measurement Method  
                             -Community Structure Analysis (CSA) Method\*  
                             -Photo Plot  
                             -Key Forage Utilization Method

A transect or 3x3 plot and associated photo plot will be established on at least one representative key habitat site per allotment which contain sensitive plants identified on table IV. The photo plot and transect will be read at least every 3 years during peak growth of the sensitive plant species.

Following the end of the grazing season or seed set of the species, which ever occurs first, a key forage utilization method transect will be read. The transect will begin at the photo plot and the sensitive plant will be included in the list of key species on this transect.

The utilization transects should be run annually for the first five years. Utilization cages may be needed to provide control comparison plants for utilization estimates.

Parameters for Adjustment:

Sensitive plant utilization would be acceptable within the range of 40 - 60% unless otherwise specified in a management plan.

Utilization levels over 3 to 5 years that are consistently greater than 60% would require a change in livestock management or enclosure.

Patterns over a 6 year period of decline in the sensitive specie component will signal the need for management change if the decline can be attributed to livestock use.

### \*MODIFICATIONS TO CSA METHOD FOR SENSITIVE PLANTS

If the sensitive plant is an annual, it should be included by name on all data measurements.

If annual plants are present, they should be grouped as ANNU and entered on the cover data worksheet. If an annual species occurs in significant amounts, it should be identified at least to genus on the cover data worksheet and its cover estimated.



### Comparison of Two Trend & Condition Study Methods

#### Quadrat Frequency Method

##### Advantages

1. Transects are highly relocatable.
2. Statistical reliability can be demonstrated in existing programs.
3. Sensitive to species change in composition.
4. Eliminates sampling bias.
5. Easy to read and fairly quick method, once established.
6. Can make cover measurements, but would also take more time.

##### Disadvantages

1. No density, composition, or production estimates are made.
2. Cannot compare to ecological site description for ecological site condition rating.
3. Monotonous data collection work.
4. Not practical on meadows or dense vegetation.
5. Cumbersome to set up since plot size is critical for accurate representation and several frames may be needed.
6. Although the sample area is larger than photo plot measurement method, sample area is only 100 feet x 100 feet.

#### Pace Transect (after SVIM)

##### Disadvantages

1. May be hard to relocate exact transect line.
2. No statistical programs currently exist to analyze reliability.
3. Take longer time to detect definite species change.
4. Sample bias can influence results.

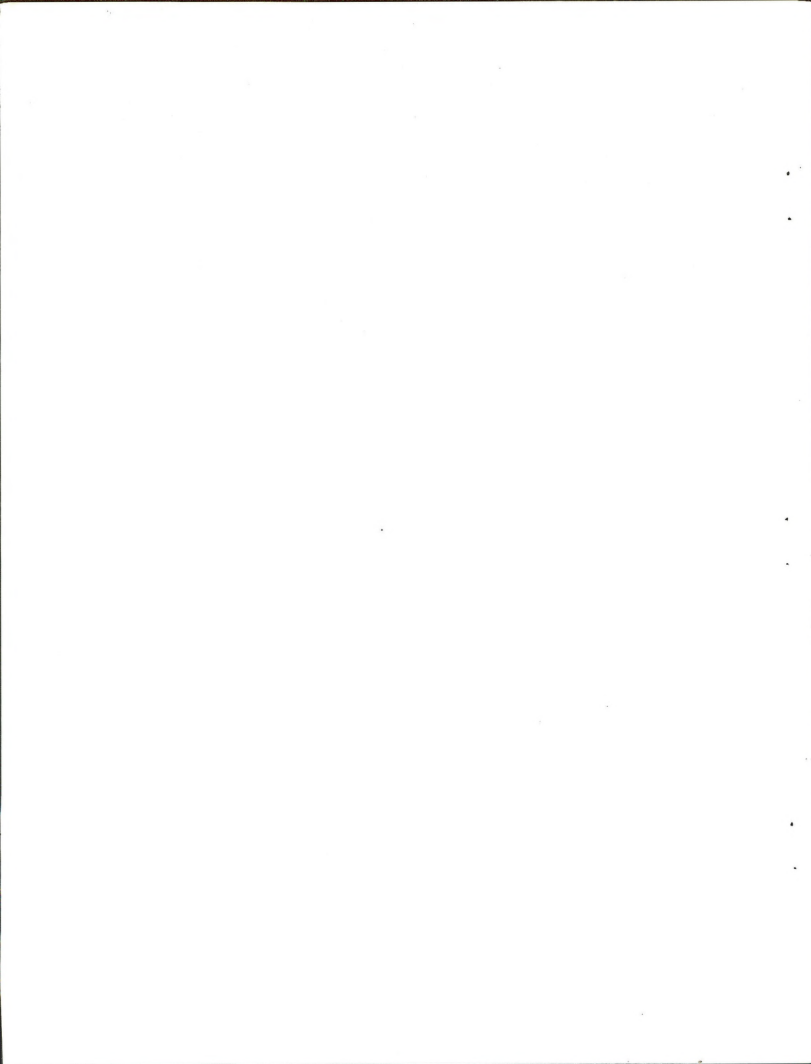
##### Advantages

1. Estimates composition (by weight or cover) density, cover, production and age and form class.
2. Can compare composition (by cover or weight) directly to ecological site description for ecological site condition rating.
3. Less monotonous data collection work.
4. Can be used on meadows or dense vegetation.
5. Easy to run and set up.
6. Very large area sampled per transect.

### Methodology References

1. Draft BLM Manual Section 4420, subsection .6 "Sampling Schemes", will be used as a guide for stratification, selection of key areas, and selection of key species.
2. The following subsections to Draft BLM Manual Section 4430 describe the monitoring methods to be used in detail.

<u>Subsection</u>	<u>Title</u>	<u>Draft Manual Page</u>
.4	Utilization Studies	
.47	Utilization Study Methods	
C.	Key Forage Plant Method	30
.5	Trend Studies	
.56	Trend Study Methods	
A.	Photo Plot - Measurement Method	46
B.	Photo Plot - SVIM Transect Method	52
C.	Community Structure Analysis (CSA)	
	Method (As Modified on Page 11)	54
F.	Quadrat Frequency Method	67
.7	Browse Studies	
.74	Browse Study Methods	
A.	Twig Length Measurement Method	97
B.	Cole Browse Method	100
3.	Stream Condition Rating Criteria are contained in BLM Technical Note 283.	
4.	Water Quality and Sediment Yield Sampling would follow procedures outlined in the <u>National Handbook of Recommended Methods for Water - Data Acquisition</u> , U.S. Geological Survey, 1982.	



Form 1279-3  
June 1964)

BORROWER

SF 85.35 .C2 84  
Benton Owens Va  
monitoring pls

DATE LOANED	BORROWER

USD1 - BLM

